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WASHINGTON LETTER.

WASHINGTON, D. C., APRIL 17, 1899.

TWELFTH CENSUS OF THE UNITED STATES.—Under the provisions of an act approved March 3, 1899, there has been created in the Department of the Interior a bureau known as the Census Office, charged with taking the twelfth census of the United States, that for the year 1900. The official in charge is known as the "Director" and not as the "Superintendent," as in the case of former organizations. The President has already appointed Ex-Gov. W. R. Merriam, of Minnesota, a man of recognized executive ability and of broad capacity. As Assistant Director Dr. Fred H. Wines has been designated. Dr. Wines was connected with the Tenth and Eleventh Censuses, and prepared the volumes upon crime, pauperism and benevolence. The office has been fortunate in securing the continued service of Mr. Henry Gannett, Geographer of the Tenth and Eleventh Censuses, and for many years principal scientist of the Geological Survey in the branch having to do with geography and allied subjects. Provision has been made for five chief statisticians who are required to be of known and tried experience. Each of these chief statisticians is to have charge of particular branches or divisions of the work. For the agricultural division Mr. LeGrand Powers, of Minnesota, has been designated. Mr. Powers was for a number of years chief of the Bureau of Labor of Minnesota, and was prominently identified with much of the successful legislation of that State on regulating child labor, authorizing factory inspection, and resulting in other beneficial acts. He has taken a broad, scholarly view of social and economic topics, and has particular interest in discussions of the resources of the country as bearing upon the great industrial problems. Another of the chief statisticians is Mr. W. C. Hunt, who, as special expert agent of the Eleventh Census, prepared the volumes upon population. Mr. William A. King has also been designated, he having been for many years in charge of that division of the office of the Secretary of the Interior having to do with the completion of minor matters connected with the Eleventh Census and the storing of the records.

One of the most noteworthy appointments is that of Mr. Walter F. Willcox, Professor of Social Science and Statistics of Cornell University. It is understood that Professor Willcox will ultimately devote his attention largely to the discussion of results and the presentation of these in form most useful to the scientific world and to the public who have to do with such matters. There has been in the past some criticism to the effect that the census returns have not been sufficiently explicit nor convenient for reference, and on the part of specialists complaints that one topic or another has not been properly considered. It is to be hoped that in the making of the Twelfth Census these specialists will be brought into close touch with the practical operations of securing the desired information, so that they may be better able to judge for themselves, not only the value of the results but the futility of demanding returns which in the nature of the case can not be had. The greater part of the work of the census is mechanical in nature, and requires for completion the exercise of a high order of business ability, but beyond or beneath this it is essential that full consideration be had of the ends toward which work should be directed. It is suggested that by the employment or co-operation of professors or colleges, and of men having to do with the social problems, it will be possible to reach a higher degree of completion in the Twelfth Census than in preceding investigations of this character.

The law provides that there shall be not to exceed 300 Supervisors' Districts, and advises that, as far as practicable, these coincide with Congressional Districts. As there are 357 of these latter it is evident that changes must be made. The principal consolidations are in cases of large cities or densely settled portions of the country. For example, Manhattan and Bronx boroughs make one Supervisor's District, and Richmond, Brooklyn, and Queens boroughs, together with Nassau and Suffolk counties, make another district. The city of Philadelphia is included within one district, and also Cook County, embracing the city of Chicago. This is the case with Erie County, including the city of Buffalo, and the entire city of St. Louis and also of Baltimore. Other consolidations of Congressional Districts into one Supervisor's District are in the New England States, where Massachusetts, New Hampshire, Vermont, Rhode Island and Connecticut, each, form a single Supervisor's District. Each of the 300 supervisors is to be appointed by the President and confirmed by the Senate. Thus it is apparent that in most cases not only will the representative in Congress have a voice in the appointment of the supervisors, but the senators must also be consulted and the applicant in turn must be acceptable to the Director of the Census and to the President.

Each minor political division, such as a rural county or town, city ward or precinct, constitutes an Enumerator's District, the subdivision being so drawn that no enumerator shall have the counting of over 4,000 individuals. The enumerators to be appointed by the Director upon nomination by the supervisors are to be, as far as practicable, residents of the minor divisions whose population they are required to count. The supervisor is to submit to the Director of the Census, together with names of the nominees, certain evidence as to the fitness of the person, this being mainly in the form of practice sheets prepared as tests for qualification for the work. The enumeration of the people, to be begun in June, 1900, must be completed for the cities within two weeks and for the country within thirty days. An army of over 30,000 men will thus be created and disbanded after one month's operations.

The enumerators' returns are to be forwarded by the supervisors to Washington and there placed in the hands of a thousand clerks who will transfer the results to small cards, there being one of these for each person enumerated. These cards are punched with from 20 to 40 holes out of the possible number of 240. The arrangement of these holes indicates the age, sex, color, nativity, conjugal condition, and other items. It is estimated that an average of 700 cards can be punched each day by one clerk, or 700,000 by the entire force, necessitating 100 working days for preparing all the cards. These 70 million or more cards after being checked will be fed to about 150 electrical machines provided with dials from which the totals can be read. These readings when assembled go to the printer and the results are then ready for the public.

The enumeration, to be begun in June, 1900, is to be complete within 30 days and the law requires that the volumes shall be printed within two years, necessitating the utmost efficiency and activity on the part of the administration of the office. It is believed that this result can be obtained if the plans now prepared are not defeated by action of Congress in failing to provide necessary funds, or in other ways. The operations in theory are exceedingly simple, but the enormous scale upon which they are conducted introduces many complications, such, for example, as putting into the hands of 30,000 new men a suitable supply of blanks, and later of instructing a thousand inexperienced persons in the use of the punching machines or of other devices. There will probably be upwards of 3,000 clerks employed in Washington and the providing of proper accommodations for these clerks is alone a matter of considerable difficulty.

WASHINGTON ACADEMY OF SCIENCES AND AFFILIATED SOCIETIES.—The Academy of Sciences, incorporated February 15, 1898, has entered upon its second year with the election of Hon. Charles D. Walcott, Director of the U. S. Geological Survey, as president.

Among the vice-presidents are Dr. Alexander Graham Bell, Mr. G. K. Gilbert and Mr. A. R. Spofford, of the Library of Congress. Its secretary is Dr. Frank Baker, Superintendent of the National Zoological Park. Among the managers are Dr C. Hart Merriam, in charge of the Biological Survey, Mr. H. S. Pritchett, Superintendent of the Coast and Geodetic Survey, Gen. G. M. Sternberg, Surgeon-General, U. S. Army, Maj. J. W. Powell, Director of the Bureau of American Ethnology, and Col. Carroll D. Wright, Commissioner of Labor.

The objects of the Academy are varied, and are so broadly stated in its constitution that it may be permitted to enter upon almost any undertaking toward advancing the interests of science or of the group of scientific men in Washington. Its particular function at present may be said to be that of a federal head for the affiliated societies, only members of these societies being eligible to membership. The present list includes 144 persons out of a possible total of 1,742 members of the nine affiliated organizations.

The scientific societies that have united in the support of the Washington Academy are, with their membership, as follows:

Anthropological	139
Biological	168
Chemical	115
Entomological	44
National Geographic	1,357
Geological	146
Historical	105
Medical	289
Philosophical	113

The figures given do not include, except in the case of the Chemical, the associate or corresponding members. The total of the members given is 2,476, but many of the names have been counted several times as the individuals are members of two or more of the component group; for example, there are 232 persons members of two societies; 68 who are members of three; 31 who are members of four ; and one person a member of all of the societies.

Under the leadership of Mr. Walcott it is hoped to make the Academy a living factor in the advance of science in Washington. A curious condition exists in this city, that although there is a large body of scientific men there has been of late years no distinctly representative organization capable of efficient activity on behalf of all concerned. It is the apparent purpose of the leaders of the new Academy not to infringe upon the claims of other organizations, but rather to try to bring together into an energetic body all of the men who are working toward the advancement of knowledge. One of the first apparent results has been the issuing of a directory, showing in a single alphabetical list the names of all members of the Academy and of its nine affiliated societies. Another result is the Saturday afternoon lectures, the general subject of these being the natural and social development of the District of Columbia.

EXAMINATION OF SOILS.—Among the investigations or explorations of resources of geographic importance carried on by the Department of Agriculture may be included the examination of soils in various parts of the United States. This is under the Division of Soils, of which Prof. Milton Whitney is chief. Work has been planned for the coming field season for a number of localities, of which two have peculiar interest, namely, the Pecos Valley of New Mexico, and the great central valley of Utah. Mr. Thomas H. Means has been sent out to carry on this investigation, with instructions to pay particular attention to the occurrence of alkali, and to the evil effects due to its development and spread over the surface of the ground. Work of this character was conducted during 1898 in the Yellowstone Valley of Montana, and the results have been of unusual interest, because of the fact that the conditions encountered there are by no means local, but are found in greater or less degree throughout the western half of the United States.

The Yellowstone River, rising in the National Park, flows northerly, and by a series of falls, well known for their majestic beauty, passes into deep cañons, emerging finally near the point where now is the town of Livingston. From here it continues in a general course a little north of east and then northeast to meet the Missouri River at the eastern boundary of the State of Montana. The valley from Livingston easterly to the State line, following the course of the river, is approximately 400 miles in length and relatively narrow. The country is arid, and for successful agriculture the artificial application of water is necessary. Small canals and ditches have been built to bring water upon the lower lands, and it is possible that in the distant future great canals will be constructed, winding along the bluffs and finally surmounting them to carry out water from the Yellowstone to moisten the vast plains north of the river and between it and the Missouri. In spite of the fact that only a small amount of land is under cultivation, and that water has been thus used for only from 12 to 15 years, it has happened that a considerable area of the fertile fields has been destroyed or rendered useless by the accumulation of earthy salts near the surface, preventing the growth of ordinary crops.

When the country was first settled the depth of standing water in the wells was from 20 to 50 feet beneath the surface, and there were no signs of alkali. Under the common practice of irrigation, however, an excessive amount of water has been applied to the land, thus saturating the soil and subsoil so that now water can be found at a depth of from only 3 to 10 feet beneath the cultivated fields, while many tracts at lower levels have been so frequently flooded that alkali has accumulated, and they have become mere swamps or plains covered with the glistening salt, resembling at a distance fields of snow. The investigations that have been made under the direction of Prof. Whitney show that the ultimate source of this salt is in the underlying shales and other rocks whose decay has furnished the soils. In a humid climate the easily soluble materials are removed, but in an arid region they tend to accumulate. With an excessive application of water to the soil, and the consequent evaporation drawing to the surface the water from beneath, there is left at or near the top of the ground all of the mineral matter which has been in solution, forming in time the snowlike crust. In sandy lands where the water can percolate beneath the surface these alkaline salts do not accumulate as rapidly, while with the extremely compact so-called gumbo soils the accumulation is notably rapid. These latter soils require great care in cultivation to prevent the evil results from ensuing. One of the deplorable conditions is that, although one farmer may be exceedingly careful, his lands may be ruined by the carelessness or neglect of neighbors situated at higher elevations, and from whose farms the excess water may slowly percolate, carrying the load of saline matter in solution. Thus cooperation must be had not only in bringing water to the land, but in preventing injury to the farms already in use. By thorough drainage relief may be had, but there is danger from the other extreme, namely, that these salts, valuable in themselves and injurious only when in excess, may be completely removed and the soil impoverished, resulting in injury to the resources of the country. The problem of proper conservation of the wealth of the soil is shown by such investigations to be comparable to that of the conservation of the woods and waters, and worthy of a large share of public attention.

DEEP WATERWAYS.—An appropriation of $90,000, to be immediately available, has been made for completing surveys and investigations, including the estimates of cost of deep waterways between the Great Lakes and the Atlantic tide waters, as recommended by the report of the first Deep Waterways Commission, transmitted by the President to Congress January 18, 1897. These investigations were begun under the act of June 4, 1897, appropriating $150,000. The commission, composed of three engineers, was appointed by the President July 28, 1897, being the outcome of the recommendations of the former board. Among the operations at present incomplete is a detailed survey of a feeder canal, to be brought from Black River, New York, heading not far from Carthage and winding along the base of the foothills at a distance of from ten to fifteen miles easterly from the shore of Lake Ontario. The route of this canal turning southeasterly crosses into the drainage area of Oneida River and ends on the summit level near Rome, above the headwaters of Mohawk River. On its way the proposed feeder canal crosses or takes in the many small streams flowing easterly into Lake Ontario, the most important of these being Salmon River. This canal is not planned for navigation purposes, but merely to furnish a sufficient supply of water for the upper levels of a deep-water canal from Lake Ontario to the valley of Mohawk River.

ALASKAN EXPLORATION.—Plans are being made for continuing exploration in Alaska, under the appropriation of $25,000 which has been made immediately available. Two parties will be sent out, one consisting of Mr. William J. Peters, topographer, and Mr. Alfred H. Brooks, geologist; the other of Mr. Frank C. Schrader, geologist, and Mr. Thomas G. Gerdine, topographer. They intend to go to Skagway and proceed by the new railway crossing the divide to near Lake Bennett, following the usual route to the Yukon. The first party will travel northwesterly along the base of the Mount St. Elias Range to the head waters of the Copper River and of the Tanana, carrying triangulation and connecting with points established last year. It is hoped to be able to make a reconnaissance map of this little-known area. The other party intends to proceed to the north of the Yukon, making portages to the Koyukuk, and mainly by canoe explore this or other of the principal streams flowing in from the north. The results of the explorations carried on during 1898 are nearly ready for publication in pamphlet form. The descriptive text has been prepared to accompany one large map and eight more detailed sheets, showing the present condition of geographic knowledge of the interior of Alaska.

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